

FISCAL IMPACTS OF QUALITY GROWTH:

A GUIDEBOOK FOR ELECTED OFFICIALS



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PREPARED FOR



City of Duluth Department of Planning & Development
3578 West Lawrenceville Street
Duluth, Georgia 30096

PREPARED BY



1045 Mid Broadwell Road
Alpharetta, Georgia 30004

PARTIALLY FUNDED BY



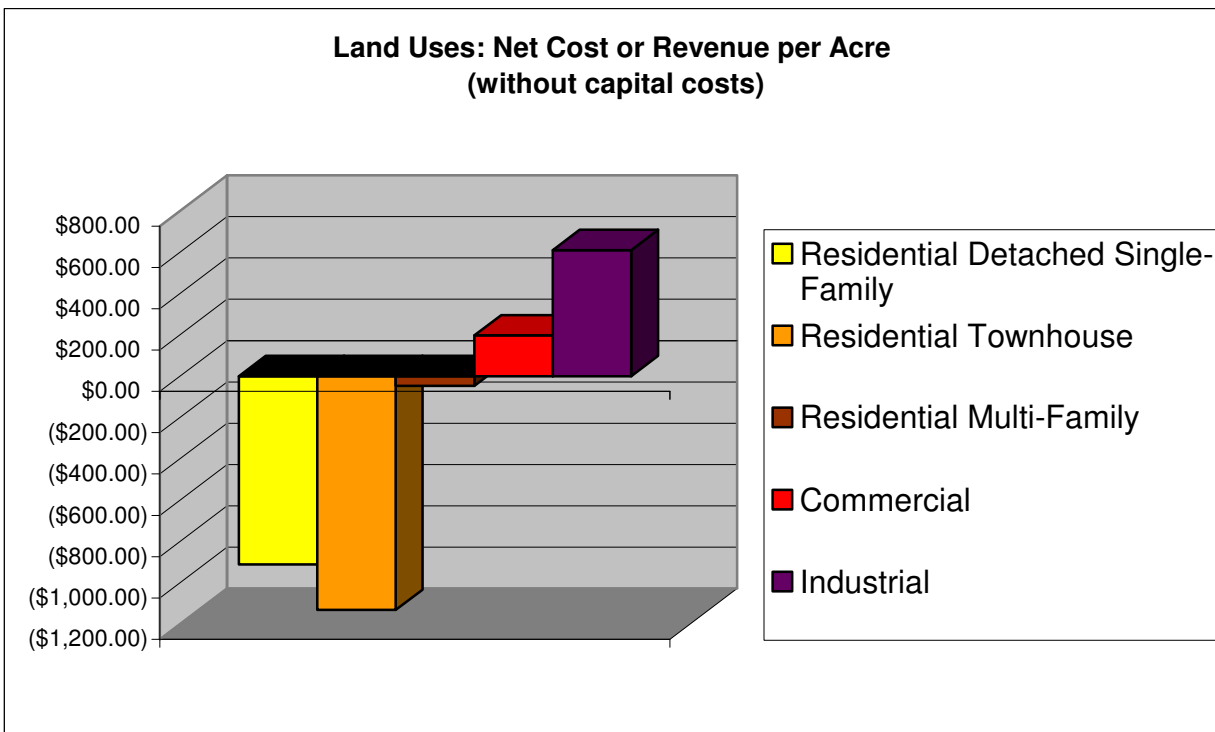
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EXECUTIVE SUMMARY

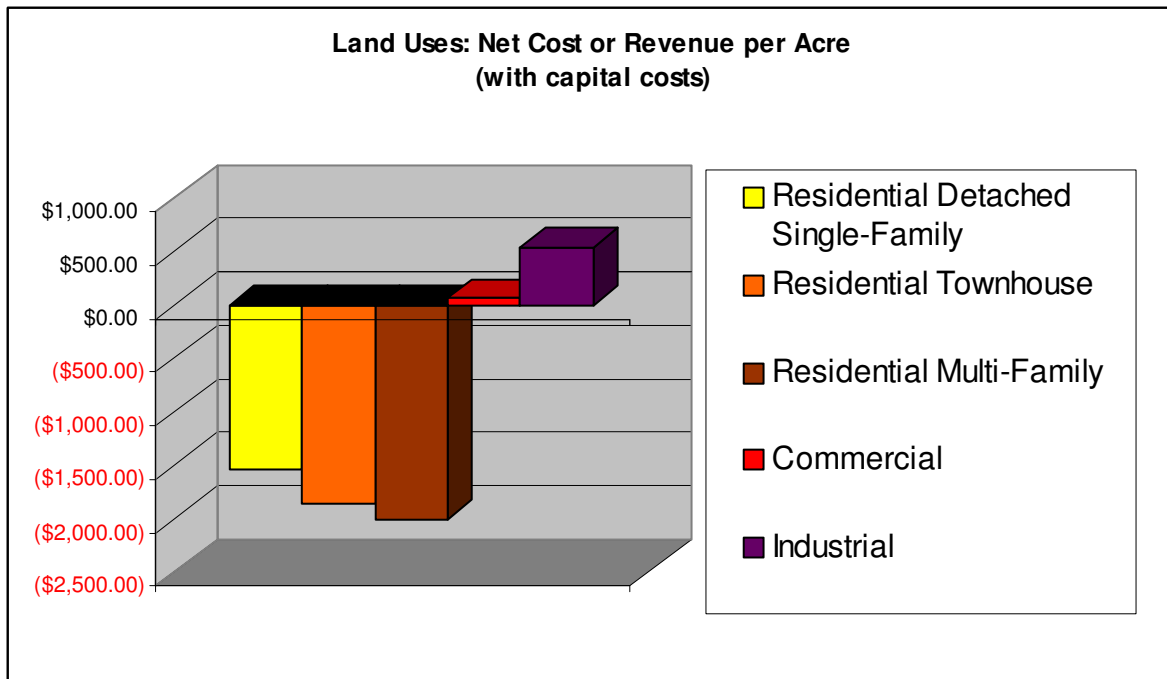
This guidebook provides a new, simplified tool to help local elected officials understand the fiscal impacts of development. It first introduces the tool—a modified version of a fiscal impact analysis—and explains how the tool works. The tool identifies major land use types, called “development prototypes,” then does some simple calculations to figure out the net revenue or net expenditure for operations associated with that prototype on a per-acre basis. Then capital costs are factored into the picture for a broader look at costs and revenues. The report explores two ways of using the results—to assess the fiscal impact of past development patterns, and to predict the fiscal impact of future development as depicted in the future land use plan.

Using the City of Duluth, Georgia as an example, the guidebook illustrates step-by-step how the tool works. First operational revenues and expenditures are compared. The results suggest that in the City of Duluth, commercial and industrial development produced a net revenue gain (+\$197.38 and +\$610.02 per acre, respectively), while all three residential uses created a net loss (-\$910.76 per acre for residential detached single-family uses, -\$1,131.53 per acre for residential townhomes, and -\$46.63 per acre for residential multi-family uses). As similar studies have found, commercial and industrial uses are more profitable because they require fewer governmental services.



However, when annual capital costs (such as new parks and a new police station) are factored in, the picture changes considerably. Considering capital costs, revenues, and expenditures together, commercial uses in the City of Duluth generated a net gain of +\$63.49 and industrial uses, a net gain of +\$542.32. Yet residential uses became less profitable: residential detached single-family produced a net loss of -\$1,538.42 per acre per year,

residential townhomes a net loss of -\$1,864.20 per acre per year, and residential multi-family a net loss of -\$2,001.81 per acre per year. Multi-family uses were slightly more expensive because they have more people (and housing units) per acre, thus require more services per acre. Without the inclusion of parks-related capital costs, multi-family residential would have been less expensive per acre than the other two residential use types.



Net Fiscal Impact Per Acre By Land Use

Annualized Per Acre Costs	Residential Detached Single-Family	Residential Townhouse	Residential Multi-Family	Commercial	Industrial
Net Operation Cost (-) or Revenue (+) Per Acre	-\$910.76	-\$1,131.53	-\$46.63	+197.38	+610.02
Capital Costs Per Acre: City Hall, Police Station, Public Works Facility	-\$134.33	-\$362.67	-\$172.05	-\$133.89	-\$67.68
Capital Costs Per Acre: Parks and Recreation Facilities	-\$493.33	-\$370.00	-\$1,783.13	\$0	\$0
TOTAL ANNUAL COSTS OR REVENUES PER ACRE	-\$1,538.42	-\$1,864.20	-\$2,001.81	+\$63.49	+\$542.34

The results of the fiscal impact analysis must be considered in a broader context, however. Only impacts to the City of Duluth were considered; impacts to county budget and services were not. Consideration of county services (such as water, sewer, and schools) may have changed the picture significantly, likely making development more expensive. Moreover, the analysis incorporated the City's 2004 capital costs, including a new city hall and new police station. Capital costs may have been particularly high in 2004, shifting the balance towards expenses. In addition, a number of revenue sources, including sales tax, franchise fees, and intergovernmental revenues such as grants, were not included in the analysis. These exclusions may also affect the analysis. For example, grants—excluded because they were too variable from year to year—comprise nearly 38% of the City of Duluth's budget. Including these revenue funds may have lessened the net cost of certain development types. Despite limitations to the method, the findings echo

those from similar studies—residential uses generate a net deficit; commercial and industrial uses generate net revenue.

The implications of the findings are clear. They suggest that local governments should encourage a balance of land uses—in both their comprehensive plans and their rezoning practices—in order to promote sound fiscal health. Cities and counties clearly need a mix of housing types in order to sustain a vibrant future. Yet local governments that allow excess residential development in areas planned for commercial and industrial uses may be headed towards fiscal problems in the future, since residential uses appear to generate a net cost to the City rather than a net revenue.

After exploring implications in Chapter 5, the guidebook ends with two appendices—one that provides step-by-step instructions for using the tool, and another that features actual data gathered for the City of Duluth.

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CHAPTER ONE: INTRODUCTION

It's your job to be fiscally responsible.... That includes development decisions.

As an elected official, you are responsible for your local government's fiscal health. The limited availability of public funding means that each public dollar must accomplish more. It is your job to see that the budget is balanced, that funds are spent responsibly, and that your community has enough dollars tucked away for future contingencies. You also must act on rezoning requests and other development proposals that come before your governing body. Many factors are taken into account when you make decisions on development proposals, including neighborhood sentiments, legal limitations, and surrounding land uses. Local governments do not usually consider short-term and long-term fiscal impacts in their decisions about development, however.

Local government elected officials often lose sight of the cumulative financial impacts of development decisions.

What impacts will a given development approval, or a series of them, have on the local government budget, now and in the future? Do your annual budgeting and capital improvement programming processes take into account the facility and service needs of new developments planned and approved in your community? For all but a few local governments, the answer is "no." Decisions on budgets and development proposals are most often made at different times, and in separate contexts by local governing bodies.

Your local government's comprehensive plan influences whether your community's economy will be healthy in the future.

Your community's comprehensive plan may help answer important questions. A good land use plan guides future zoning decisions and considers the proper balance among civic, residential, industrial, and commercial land uses. The land use plan can have a major impact on the future economic base of your community. If the development called for in your land use plan is imbalanced with regard to service requirements and tax revenues, that can spell financial problems in the future for your community. On the other hand, if tax revenues from new development and the demands of future land uses on services are identified and balanced in your community through land use planning, a healthy future economy can be ensured.

However, chances are your local government's comprehensive plan won't have all the information you need about the fiscal impacts of development.

Your comprehensive plan may not give you the answers you need to fully understand the relationships between land use and local government fiscal matters. The comprehensive plan provides information on future facility needs, based on forecasts of projections of future growth. Chances are that the plan is not as up-to-date as it needs to be, however, or perhaps it doesn't tell you much about the true needs of public facilities given the pace and types of developments that have recently occurred in your community.

Fiscal impact analyses are sometimes used to help answer questions about the fiscal impacts of growth.

To assist in their decisions about balancing growth for a healthy future economic base, some communities use fiscal impact

analysis techniques to prepare local studies of how much it costs to provide certain facilities and services. More and more local planning departments are beginning to try and incorporate fiscal impact analysis as a part of their land use planning efforts.

Such fiscal impact studies, however, are often too complicated to understand.

Only the most sophisticated planning departments can implement a fiscal impact model. Most models are designed and implemented by consultants. The discussion about how the models are put together can quickly go “over the heads” of local officials and even your own planners, as well. The methods and models for determining fiscal impacts are just too complex for smaller local governments to understand and apply, even those with professional planning staffs.

We need simpler ways of determining the fiscal impacts of land use planning and development decisions.

When preparing land use plans, planners do not have acceptable “rules of thumb” or simple-to-apply methods that will guide decisions about how much commercial and other non-residential land is needed in the community to ensure a balanced fiscal-economic base. Are there proper benchmarks for determining the proper mix of economically healthy development? For example, a frequently asked question is

“what percentage of a community’s land area should be commercial and industrial development?” Another is “When do we have too much residential development?” Yet another frequently asked question is “What is the fiscal impact of apartments on city capital and operating budgets?”

This guidebook may not provide answers to all of these questions, but it is intended to demonstrate how fiscal impacts of different land uses can be considered in comprehensive planning and development review processes. The methods presented in this guidebook provide an alternative to expensive, complicated fiscal impact models. By providing a simple method in a case study context (i.e., City of Duluth, Georgia), this guidebook is intended to educate community leaders about the fiscal impacts of land use planning and development decisions.

Quality growth means “financially smart” growth.

“Quality growth” seeks to ensure that public investments in community facilities and services (e.g., police, fire, roads, parks, etc.) are efficient. Growing smart also means that, as new development occurs, the appropriate levels of community facilities and services are planned and provided. This guidebook promises to help you as a local elected official better understand the implications of your community’s land use planning and development decisions.

FISCAL IMPACT ANALYSIS CAN HELP YOU:

1. Anticipate the fiscal impact of a specific development project
2. Understand the short and long-term cumulative fiscal effects of development
3. Plan a mix of land uses to ensure a healthy tax base
4. Decide whether services should be extended or new areas annexed

CHAPTER TWO: CONVENTIONAL WISDOM ABOUT DEVELOPMENT IMPACTS ON FACILITY AND SERVICE COSTS

A literature review was conducted in order to inform this project.¹ This section of the guidebook presents the most important findings.

Residential development rarely pays for itself.

Residential uses are typically considered to be a net fiscal drain on a community, requiring on average more than \$1 in local government services for every \$1 of local revenue generated. School facility costs represent a large percentage of the net fiscal drain. It is generally accepted that residential development generates costs for schools that are often not paid by such development in the form of tax revenues. Residential development has been found to create a net fiscal deficit even when schools are excluded from consideration.²



Historic Home, City of Duluth

However, not all studies show that residential development is a net fiscal drain on local governments. Some residential developments may be fiscally neutral or better.³ More expensive single-family homes can have positive fiscal impacts.⁴ For example, in most communities, the property taxes from a million-dollar home

would easily offset any potential costs to the local government. Each community's "break-even" point (where revenues from a home will cover costs) is different.

Commercial and industrial developments may pay for themselves, although there is no firm agreement on that point.

Conventional wisdom has suggested that commercial and industrial developments require relatively few public services and generate more revenues than they cost in terms of providing local services. One reason for this finding is that commercial and industrial developments do not create demand for certain facilities, such as schools and parks. However, by the early 1990s, the predominant view was that new development of *any kind* rarely generates local tax payments sufficient to pay its own way. Commercial development was found to result in a net fiscal deficit for one county in Idaho.⁵ In short, from a city's fiscal point of view, profitable development is now considered to be rare.⁶

Location and density matter when it comes to infrastructure costs.

The literature is consistent in its conclusions that low-density developments incur higher infrastructure (e.g., roads, utilities, schools, etc.) costs than in-town developments utilizing existing infrastructure.⁷ There are substantial cost savings from contiguous development patterns.⁸ The higher costs in sprawling communities are considered to be predominantly a function of providing arterial roads and trunk utility lines traversing unimproved land bypassed by leapfrog development.⁹ Increased capital costs resulting from increased distance will usually mean increased operating and maintenance costs; for instance, seventy-

five linear feet of street costs more to maintain than sixty linear feet of street.¹⁰



City of Duluth Town Center Development

The literature also suggests that low-density development typically incurs higher public operating and per-unit infrastructure costs.¹¹ Compact, planned growth results in reductions in new infrastructure and service costs, because growth can be directed to areas with existing service capacity. Where new infrastructure is required, compact growth requires less of it to serve the same

number of units and enables economies-of-scale for water and wastewater treatment.¹²

LIMITS TO FISCAL STUDIES

1 They only examine fiscal impacts.

They do not, and are not designed to, look at the social, environmental, or other impacts of development such as traffic congestion and habitat destruction.

2 They may leave out other jurisdictions.

Unless structured to do so, fiscal studies will not look at the fiscal impact on adjacent jurisdictions or service districts,

3 They may not recognize how land uses interact.

For example, new commercial and industrial development can stimulate the demand for residential development (e.g., as the new workers look for homes).

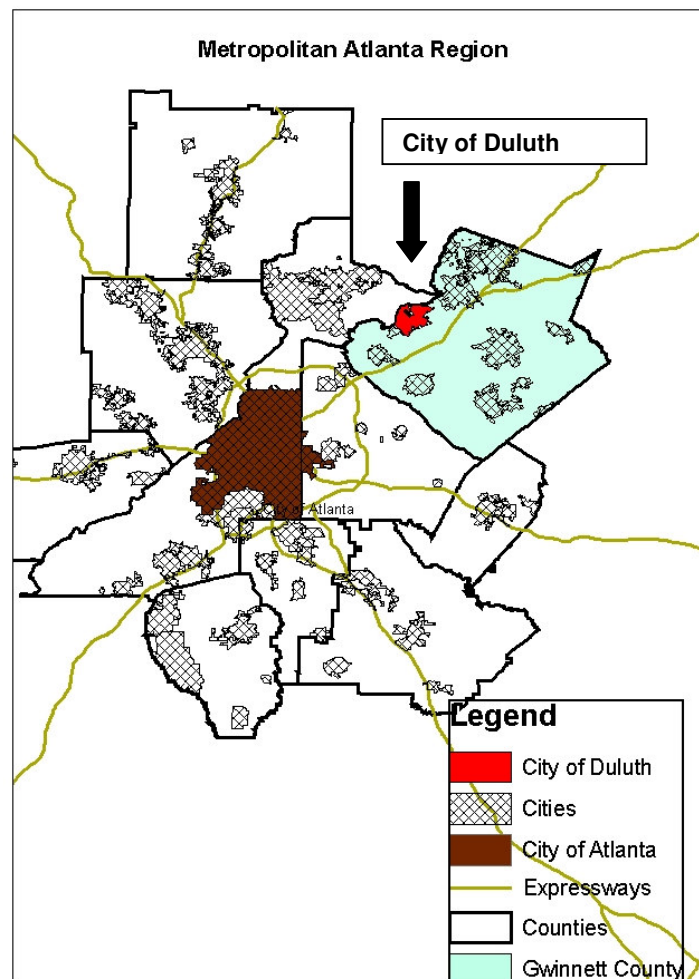
4 They are only one factor in decision-making.

A healthy city or county requires a mix of housing types to attract and maintain commercial and industrial development. Local governments should make decisions based on their overall long-term vision or community goals, using the fiscal impact analysis as one input.

5 They may not consider equity issues.

Studies may not consider how different groups are affected by development (e.g., existing versus new residents, residents versus commuters, residents of differing income levels, etc.)

CHAPTER THREE: CASE STUDY: CITY OF DULUTH, GEORGIA



INTRODUCTION, BACKGROUND AND PURPOSE

Local governments have the capability of changing the land use mix in their localities by changing their land use plans and making different development decisions. In the case of the City of Duluth (pop. 22,100), concern was raised by city planners and elected officials during the process of amending its land use plan (during 2003) that residential subdivisions and townhouses were occupying land zoned for commercial uses. It was perceived that land designated for commercial use, if

developed for residential uses instead, might have a detrimental impact on the City's tax base.

City leaders noticed that many areas of the City that had been zoned for manufacturing or commercial had actually been developed as residential. They sought answers about how residential development affects City finances, in particular what the net fiscal impact was of that residential development. Was the City better or worse off fiscally with

other uses such as manufacturing and commercial? They asked, “Should lands zoned as commercial or manufacturing be reserved for those uses, due to fiscal concerns?”

There are two common types of fiscal impact studies. The first is a simulation of different area-wide development scenarios (e.g., with variations in densities, different mixes of land uses, etc.). These are often used for comprehensive planning purposes. The second type of fiscal impact study analyzes one or more specific development proposals, to gauge their fiscal impacts.

The original goal of this study was to conduct the first type of fiscal impact study – a citywide analysis. The study evolved into one aimed primarily at figuring out the net fiscal impacts (revenues minus expenditures) of major types of land use (e.g., townhouse, commercial, etc.) in the City. City of Duluth officials desired to take a retrospective look at the fiscal impacts of the past three years of development, and to evaluate future annexation possibilities that were on the horizon.[†]

The method developed for the City of Duluth was unique. It did not assess a specific development project, nor did it look at alternative development scenarios. Rather, it tried to assess the City’s expenditures for serving (and revenues gained from) major land uses. This type of study is often called a “Cost of Community Services” study. However, unlike most studies of that type, the research provided here considers

different types of residential development (e.g., townhomes, single-family homes, and apartments) and divides “non-residential” development into commercial and industrial land use types. This study also differs from conventional approaches in that it considers some of the costs of providing capital improvements. In that sense it is a hybrid of approaches used in fiscal impact analysis, cost of community services studies, and development impact fee programs. All along the way, the intent was to keep the approach as simple to understand as possible and as flexible as possible in its application to Duluth and elsewhere.

Since this is a guidebook for local elected officials, the text of this report relegates most of the discussion about technical methods to appendices. For staff or consultants who wish to replicate these methods, Appendix A of this guidebook provides step-by-step discussion. Moreover, Appendix B provides data tables supplied by the City.

[†] This represented a change from the original grant application and work scope. Discussions between the city and consultant led to a change in the study method. Specifically, the city desired to emphasize “land use-specific” data (i.e., major land use types such as apartments and industrial) which could be used in multiple contexts, as opposed to evaluating alternative citywide land use planning scenarios. That change was viewed by the city as more consistent with its needs and more flexible in its application. This change also was a better match with existing information in the city’s updated land use plan element.

SERVICE PROVISION

This section identifies the facilities and services provided to development and the service provider (see Table 3.1). It is important to emphasize at the outset that Duluth only offers certain services: police, parks and recreation, planning and development, limited road and public works (including buildings and grounds) functions, and general government. Hence, the fiscal impact analysis on Duluth's operating budget excludes important facilities and services provided by Gwinnett County,

including water, sanitary sewer, libraries, fire/EMS (emergency medical services), and schools (Table 3.2). Although the omissions of county facilities (and garbage collection since it is arranged by the City but provided by a private company) would seem to render this analysis grossly incomplete, it is important to emphasize that the City of Duluth is the client and so emphasis has been placed on impacts to its operating budget.

Table 3.1
Facilities and Services Provided by the City of Duluth

Facility or Service	Service Provider	Funding Sources
Roads	City of Duluth and Gwinnett County	General fund; intergovernmental funding sources
Police	City of Duluth	General fund; no user fee
General Government	City of Duluth	General fund
Parks and Recreation	City of Duluth	General fund for parks; fees for recreation programs

Table 3.2
Facilities and Services Provided by Other Entities

Facility or Service	Service Provider	Funding Sources
Schools	Gwinnett County Board of Education	General fund
Public Water	Gwinnett County	User fees; proprietary funds
Sanitary Sewer	Gwinnett County	User fees; proprietary funds
Garbage Collection	Private Company	Fee for bags collected by City
Libraries	Gwinnett County Library System	General fund; no user fee
Fire/EMS	Gwinnett County	General fund; no user fee

DULUTH'S OPERATION EXPENDITURES AND REVENUES IN FY 2003

We are interested only in municipal revenue sources, because intergovernmental revenues such as grants fluctuate and cannot be considered a steady stream of revenue from year to year. Additionally, most intergovernmental revenues are spent on capital items (streets, streetscape improvements, etc.) and in some cases special programs (such as COPS) (Community Oriented Policing Services).

We are also interested in determining what types of revenues, if any, are generated by various types of land uses. For instance, users of recreation programs pay fees that offset expenditures, and planning and development department expenditures are partially offset by inspection and permit fees. Therefore, revenues derived from operations need to be allocated to the land uses that generate those revenues. In other words, it is important to determine the "net"

expenditures for each type of service, and we do that by subtracting any land-use specific revenue from the costs (expenditures) that are attributed to that type of land use.

The City of Duluth operational budget shows expenditures of \$9,766,980 in FY 2003 (that amount excludes debt service and items in the capital budget). The Duluth FY 2004 budget (2003 data) shows revenues from sources other than taxes (i.e., excluding property, sales, and other taxes, and also excluding all intergovernmental revenues) totaled \$4,188,000 in FY 2003. The difference between the FY 2003 operation expenditures and the selected operation revenues was \$5,578,980. Operation expenditures and revenues, both allocated to budget categories, are shown in Table 3.3.

Table 3.3
City of Duluth FY 2003 Operating Revenues and Expenditures

Budget Category[‡]	2003 Operations Expenditures (Total)	2003 Operations Revenues (non-tax, non- intergovernmental)	2003 Expenditures Less Revenues (less non-tax, non- intergovernmental revenues)
General Government	\$1,082,390	\$659,000	\$423,390
Administration	\$1,755,630	\$384,000	\$1,371,630
Parks & Recreation	\$929,710	\$195,000	\$734,710
Public Safety	\$4,384,240	\$2,524,000	\$1,860,240
Streets	\$701,610	\$18,000	\$683,610
Planning & Development	\$913,400	\$408,000	\$505,400
Debt Service	(excluded)	--	--
TOTAL (without debt service)	\$9,766,980	\$4,188,000	\$5,578,980
TOTAL (with debt service)	\$10,434,813	--	--

Source: City of Duluth Budget 2004 (FY 2003 expenditure and revenue data). Expenditure data exclude capital expenditures, and revenue data exclude taxes and intergovernmental revenues.

[‡] Notes on Categorization: Business licenses/permit revenues (\$384,000) are shown in the Administration category. Inspection fees/permits (\$408,000) are shown in the Planning & Development category. Garbage bag revenues (\$18,000) are shown in the streets category since it is most closely a public works function. Police fines and forfeitures (\$2,524,000) are shown in the public safety category. Parks and recreation revenues (\$195,000) are shown in the parks and recreation category. Miscellaneous revenues (\$659,000) are shown in the general government category.

Operation revenues and expenditures need to be allocated to the various major land uses. Revenues are allocated to the five major types of land uses in Tables 3.4 and 3.5—three types of residential uses (detached single-family, townhouse, and multi-family), commercial, and industrial use. In the City of Duluth, detached single-family uses were determined to have an average density of 2 dwelling units/acre (note that the actual range of detached single-family residential dwellings is from less than one unit per acre to approximately 4.5 units per acre. The 2 unit per acre figure is an estimated average). Townhouses were estimated to have an average of 6 units per acre; and multi-family uses, 12 units per acre.

The City budget data do not permit precise estimates of revenues by land use. Administration revenues are primarily for business licenses and therefore are allocated between commercial and industrial developments. Recreation fees

are allocated among residential development based on estimates provided by the City's Parks and Recreation Director.

General government revenues are shown as "miscellaneous" in the 2004 budget (2003 data); since they are not further attributed, they are allocated based generally on the percentage of total developed land in each land use category (from the existing land use data in the revised land use element) and on best professional judgments of staff and consultant. Public safety revenues consist primarily of fines which are paid by residents as well as non-residents. Planning and Development Department revenues are permit and inspection fees which are allocated to land use categories based on estimates of permits issued and inspections made for buildings in the respective land use categories. Expenditures are also allocated to the major land uses (see Tables 3.6 and 3.7).

Table 3.4
City of Duluth Operation Revenues by Major Land Use Category (in \$)
(Estimated Budget Allocation for FY 2003 Non-tax, Non-intergovernmental Revenues)

Budget Category	Residential Detached Single-Family	Residential Townhouse	Residential Multi-Family	Commercial	Industrial	Other (including non-city)	Total 2003 Operations Revenues (non-tax, non-inter-governmental)
General Government	\$230,650	\$65,900	\$65,900	\$131,800	\$52,720	\$112,030	\$659,000
Administration	\$0	\$0	\$0	\$288,000	\$96,000	\$0	\$384,000
Parks & Recreation	\$156,000	\$19,500	\$15,600	\$0	\$0	\$3,900	\$195,000
Public Safety	\$1,009,600	\$378,600	\$504,800	\$252,400	\$126,200	\$252,400	\$2,524,000
Streets	\$15,000	\$3,000	\$0	\$0	\$0	\$0	\$18,000
Planning & Development	\$81,600	\$163,200	\$0	\$102,000	\$20,400	\$40,800	\$408,000
TOTAL (without debt service)	\$1,492,850	\$630,200	\$586,300	\$774,200	\$295,320	\$409,130	\$4,188,000

Source: Revenues from City of Duluth Budget 2004 (FY 2003 revenue data). Allocations by Jerry Weitz & Associates, Inc., 2004, with input from City staff. See Appendix A for explanation of assumptions.

Table 3.5
City of Duluth Operation Revenues by Major Land Use Category (in %)
(Estimated Budget Allocation for FY 2003 Non-tax, Non-intergovernmental Revenues)

Budget Category	Residential Detached Single-Family	Residential Townhouse	Residential Multi-Family	Commercial	Industrial	Other (including non-city)
General Government	35%	10%	10%	20%	8%	17%
Administration	0%	0%	0%	75%	25%	0%
Parks & Recreation	80%	10%	8%	0%	0%	2%
Public Safety	40%	15%	20%	10%	5%	10%
Streets	83%	17%	0%	0%	0%	0%
Planning & Development	20%	40%	0%	25%	5%	10%
TOTAL % Revenues (without debt service)	36%	15%	14%	18%	7%	10%

Source: Revenues from City of Duluth Budget 2004 (FY 2003 revenue data). Allocations by Jerry Weitz & Associates, Inc., 2004, with input from City staff. See Appendix A for explanation of assumptions.

Table 3.6
City of Duluth Operation Expenditures by Major Land Use Category (in \$)
(Estimated Budget Allocation for FY 2003)

Budget Category	Residential Detached Single-Family	Residential Townhouse	Residential Multi-Family	Commercial	Industrial	Other (including non-city)	Total 2003 Operations Expenditures
General Government	\$736,025	\$64,943	\$64,943	\$108,239	\$54,120	\$54,120	\$1,082,390
Administration	\$1,193,828	\$105,338	\$105,338	\$175,563	\$87,782	\$87,781	\$1,755,630
Parks & Recreation	\$743,768	\$92,971	\$74,377	\$0	\$0	\$18,594	\$929,710
Public Safety	\$1,315,272	\$657,636	\$876,848	\$876,848	\$219,212	\$438,424	\$4,384,240
Streets	\$280,644	\$70,161	\$0	\$175,403	\$35,080	\$140,322	\$701,610
Planning & Development	\$365,360	\$182,680	\$91,340	\$200,948	\$45,670	\$27,402	\$913,400
TOTAL (without debt service)	\$4,634,897	\$1,173,729	\$1,212,846	\$1,537,001	\$441,864	\$766,643	\$9,766,980

Source: Expenditures from City of Duluth Budget 2004 (FY 2003 expenditure data). Allocations by Jerry Weitz & Associates, Inc., 2004, with input from city staff. See Appendix A for explanation of assumptions.

Table 3.7
City of Duluth Operation Expenditures by Major Land Use Category (in %)
(Estimated Budget Allocation for FY 2003)

Budget Category	Residential Detached Single-Family	Residential Townhouse	Residential Multi-Family	Commercial	Industrial	Other (including non-city)
General Government	68%	6%	6%	10%	5%	5%
Administration	68%	6%	6%	10%	5%	5%
Parks & Recreation	80%	10%	8%	0%	0%	2%
Public Safety	30%	15%	20%	20%	5%	10%
Streets	40%	10%	0%	25%	5%	20%
Planning & Development	40%	20%	10%	22%	5%	3%
TOTAL (without debt service)	47%	12%	12%	16%	5%	8%

Source: Expenditures from City of Duluth Budget 2004 (FY 2003 expenditure data). Allocations by Jerry Weitz & Associates, Inc., 2004, with input from City staff. See Appendix A for explanation of assumptions.

Data in Tables 3.4 and 3.6 are compared to determine a “net non-tax operation cost per acre” for each of the major land use categories in Table 3.8.

Table 3.8
City of Duluth Net Non-tax Operation Cost Per Acre
By Land Use Category, 2003

Land Use Category	Operation Expenditures (\$)	Operation Revenues (\$) (non-tax, non-intergovernmental)	Expenditures Minus Revenues (\$)	Acres of Land, 2003	Net Operation Cost Per Acre of Land, Excluding Taxes (\$)
Residential Detached Single-Family	\$4,634,897	\$1,492,850	\$3,142,047	1,915	\$1,640.76
Residential Townhouse	\$1,173,729	\$630,200	\$543,529	232	\$2,342.80
Residential Multi-Family	\$1,212,846	\$586,300	\$626,546	574	\$1,091.54
Commercial	\$1,537,001	\$774,200	\$762,801	720	\$1,059.45
Industrial	\$441,864	\$295,32	\$146,544	420	\$348.91
Other (including outside city)	\$766,643	\$409,130	\$357,513	--	--
Total	\$9,766,980	\$4,188,000	\$5,578,980	3,861	--

Source: See Prior Tables. Acres of land use from Table 7-2 of Revised Land Use Element adopted 2004.

Property taxes are estimated for each major land use by sampling several properties. By collecting property-specific data from the City's property tax digest on acreage of the parcel and taxes paid, a "taxes paid per acre" is calculated. It is necessary to convert the property tax data to a "per acre" basis so that the information can be used in

land use planning and development review processes.

Average property tax revenues for each major type of land use are shown in Table 3.9. See Appendix A for a description of methods and Appendix B for individual property data and for background on deriving the data in Table 3.9.

Table 3.9
Annual (2003) Average Property Tax Paid Per Acre
By Land Use Category,
City of Duluth and Gwinnett County

Land Use	Average City Property Taxes Paid (\$) Per Acre Year 2003	Average County Property Taxes Paid (\$) Per Acre Year 2003
Residential Detached Single-Family	\$730.00	\$4,145.75
Residential, Townhouses	\$1,211.27	\$6,715.19
Residential, Apartments	\$1,044.91	\$6,865.22
Commercial	\$1,256.83	\$7,677.41
Industrial	\$958.93	\$5,428.30

Source: City of Duluth, April 2004 (see Appendix B).

Table 3.10 combines data from previous tables to determine a net operation cost per acre, including property taxes.

Table 3.10
Net Operation Cost per Acre (Including Property Taxes)
By Land Use Category
City of Duluth, 2003

Land Use Category	Acres of Land, 2003	Net Operation Cost Per Acre of Land, Excluding Taxes (\$)	Property Taxes Paid Per Acre (\$)	Net Fiscal Impact Operational Budget Per Acre (\$)
Residential Detached Single-Family	1,915	\$1,640.76	\$730.00	-\$910.76
Residential Townhouse	232	\$2,342.80	\$1,211.27	-\$1,131.53
Residential Multi-Family	574	\$1,091.54	\$1,044.91	-\$46.63
Commercial	720	\$1,059.45	\$1,256.83	+197.38
Industrial	420	\$348.91	\$958.93	+610.02

Source: See Prior Tables.

Table 3.10 reveals a number of conclusions. It shows that, even if townhouses are the second highest producer of property taxes when considered on a per acre basis, they have the highest net fiscal impact on the operations budget, with an estimated net cost of \$1,131.53 per acre of townhouse development. Detached, single-family residences have a net operations budget deficit of \$910.76 per acre. Of the three residential types, multi-family residences (apartments) come closest to breaking even with regard to operating revenues and expenditures, with a net operations cost of \$46.63 per acre of apartment land.

Hence, when considering just the operations budget, conventional wisdom appears to hold true in the case of Duluth: residential development generally does not pay for itself. The revenues, including property taxes, collected in Duluth from residential developments are less than expenditures for operations that can be reasonably attributed to residential developments. Multi-family developments (apartments), because of higher densities, have substantially lower per acre net costs on Duluth's operating budget than detached

single-family residences and townhouses. The difference in the case of Duluth is attributed primarily to the observation that more demand (operation costs) is placed on parks and recreation facilities by the occupants of detached dwellings and townhouses than in apartment complexes, which provide in many cases their own recreational facilities on site.

Also consistent with conventional wisdom, commercial and industrial development generate a net surplus for the operations budget (i.e., the property taxes they generate are more than the operational expenditures required for such development). Commercial development generates a surplus of nearly \$200 per acre (and this does not include the impacts of sales taxes). According to City data, industrial development is the most profitable for Duluth, because it generates an operating budget surplus of \$610 per acre. That surplus is explained by observing that industrial development requires no parks and recreation facilities, few police expenditures, and few general government expenditures.

FISCAL IMPACTS OF THE PAST THREE YEARS OF DEVELOPMENT

From the numbers provided in Table 3.10, virtually any type of “what if” development scenario can be evaluated. In the case of Duluth, there is interest in a “retrospective” view of development that took place during the past three years. Data in the updated land use element provide the acres of land use change during the past three years. Assuming that 2003 annual operating budget data applied during the past three years, one can estimate the net fiscal impacts of the City’s development decisions during that time. See Table 3.11 for a summary of recent land use changes. As noted in the updated land use element, that short period of time is of substantial significance since “more than one-half the year 2000 supply of vacant land was developed in the last three-year period.”

The numbers in Table 3.11 show the City lost land area devoted to detached single-family residences from 2000 to 2003. This appears to be an anomaly that is explained by difficulties in comparing the 2000 and 2003 residential land use data, since they were classified according to different density categories. However, it is also possible that commercial, industrial, public-institutional, and other higher-density residential land uses have replaced previously low-density residential uses in the City. Given the land use change from 2000 to 2003, we can use the figures on per acre costs of these land uses to determine the net fiscal impact of recent land use change on the City’s operations budget. See Table 3.12.

Table 3.11
Existing Land Use by Major Category, 2000 and 2003
Land Use Change, and Net Fiscal Impact on Operating Budgets
City of Duluth

Existing Land Use	Estimated Acreage, 2000	Estimated Acreage, 2003	Net Change, in Acres, 2000-2003
Residential, detached single-family	1,981.1	1,914.4	-66.7
Residential, townhouses	94.7	231.6	+136.9
Residential, multi-family	364.4	573.6	+209.2
Commercial	513.0	719.6	+206.6
Industrial	351.6	420.2	+68.6

Source: City of Duluth Comprehensive Plan, Revised Land Use Element.

Table 3.12
Fiscal Impacts of Development on Operating Budgets, 2000-2003
City of Duluth

Existing Land Use	Net Change, in Acres, 2000-2003	Net Fiscal Impact Per Acre	Net Impact in a Given Fiscal Year
Residential, detached single-family	-66.7	-\$910.76	+\$60,748
Residential, townhouses	+136.9	-\$1,131.53	-\$154,906
Residential, multi-family	+209.2	-\$46.63	-\$9,755
Commercial	+206.6	+197.38	+\$40,779
Industrial	+68.6	+610.02	+\$41,847
Net Fiscal Impact on Annual Operating Budget	--	--	-\$21,287

Source: City of Duluth Comprehensive Plan, Revised Land Use Element.

Table 3.12 shows the estimated operating costs for a single fiscal year based on land use changes that have occurred during the past three years in Duluth. The numbers are provided for one year only, rather than three, since the land use data are not annualized. These numbers show that Duluth's development decisions have been relatively sound financially. New residential developments such as townhouses have been added, and those residential uses create a deficit in terms of estimated operational costs. However, the City has also added apartments to its housing stock, which are close to a break-even operational fiscal impact according to the analysis in the Duluth case study. Furthermore, the City has offset residential development with significant commercial and industrial development.

One can also factor in the loss of low-density residential land into the fiscal impact calculation. That is, by converting low-density residential land to other uses, the City is lessening its costs in that regard (a +\$60,748 fiscal impact). Hence, net fiscal impact of these land use changes on the annual operation budget is -\$21,287. This is a small amount and is considered nearly "break even." It is important to emphasize that those figures exclude capital budget impacts, nor do they capture the impacts of other land uses, such as an increase in public-institutional land (i.e., the development of many churches), which do not pay taxes and the net fiscal impacts of which are not quantified in this study.

FISCAL IMPACTS OF THE REVISED LAND USE PLAN

Like the analysis in the preceding section, the fiscal impact figures presented in this study can also be applied to land use change from the current year (2004) to the

horizon year of the future land use plan (2025). Indeed, this is a goal of the study, to show how the fiscal impact method can be applied in long-range land use planning.

Table 3.13
Estimated Fiscal Impact of Land Use Change, 2004-2025
on Operating Budgets, City of Duluth

Existing Land Use	Estimated Acreage, 2003	Projected Acreage, 2025	Net Change, in Acres, 2003-2025	Net Fiscal Impact Per Acre	Impact on Annual Operating Budget Impact by 2025
Residential, detached single-family	1,914.4	1,869.7	-44.7	-\$910.76	+\$40,711
Residential, townhouses	231.6	224.6	-7.0	-\$1,131.53	+\$7,921
Residential, multi-family	573.6	551.2	-22.4	-\$46.63	+\$1,044
Commercial	719.6	834.7	+261.1	+197.38	+\$51,536
Industrial	420.2	461.3	+41.1	+610.02	+25,072
Net Fiscal Impact on Annual Operation Budget, All Land Use Changes Shown	--	--	--	--	+\$126,284

Source: City of Duluth Comprehensive Plan, Revised Land Use Element.

The figures in Table 3.13 deserve significant explanation. First, note how the residential acreage figures are negative in all three residential categories. The column “net change in acres, 2003-2025” shows that there will be conversions of residential land to other uses such as mixed-use development (the impact of which is not quantified in this study) and commercial development contemplated in the future land use plan. That loss of residential land represents a positive net fiscal impact on the annual operation budget. That is why the net fiscal impact column of Table 3.13 shows residential land use categories shows a having a positive impact for low-density residential uses – the acreage is predicted to be reduced, and the fiscal analysis accounts for those losses as a reduction of operating budget liabilities.

Change contemplated by the land use plan also includes substantial additional commercial development (+261 acres) and some additional industrial development (+41

acres). Counting the positive net fiscal impacts of new commercial and industrial development along with the positive net fiscal impacts of reducing residential acreage (which lessens costs), the net fiscal impact of the land use changes on the annual operation budget, as shown in Table 3.13, is +\$126,284.

CHAPTER FOUR: IMPACTS OF DEVELOPMENT ON CAPITAL FACILITIES AND SERVICES

The previous chapter examined the impact of development on the City of Duluth's operating budget. Yet to fully understand the fiscal impacts of development, we must also understand impacts on capital facilities. This chapter considers the capital facilities requirements of different land uses.



GENERALLY

Table 4.1 summarizes impacts that different land uses have on various local government facilities and services. It is "theoretical" in the sense that it is not based on empirical studies (but see the Duluth case study for empirical data).

Table 4.1
Theoretical Impacts by Land Use Type (X = impact)

Facility or Service	Single-Family Residence	Apartment/Townhouse	Office	Institutional	Retail or Commercial	Industrial X May be offset by private provision
Police	X	X	X Minor	X Minor	X Major	
Fire	X	X	X	X	X	X
Public Water	Some/most	X	X	Some/most	Some/most	Some/most
Sanitary Sewer	Some	X	X	Some/most	Some/most	Some/most
Garbage Collection	X Some/may be offset by private provision	X Some/may be offset by private provision	X	X Little/no impact; schools offset service requirements	X	X
Parks and Recreation			Little or no impact		Little or no impact	Little or no impact
Schools	X	X	No impact	No impact	No impact	No impact
Roads	X	X	X	X	X	X
General Government Facilities	X	X	X	X	X	X

Source: Jerry Weitz & Associates, Inc. October 31, 2003. Fiscal Impacts of Quality Growth: Summary of Literature Results and a Tentative Research Design For Duluth.

PLANNED MUNICIPAL FACILITIES

Duluth's FY 2004 capital budget reveals the following major projects. The list excludes roads, streetscape, and storm drainage projects. In addition, there are a number of

capital projects (smaller amounts) that are "carried over" from the prior year's capital budget.

Table 4.2
Major Capital Improvements
City of Duluth

Project Number/Description	Total Cost (\$)
City Hall Design/Build	5,000,000
Police & Courts Design/Build	10,100,000
Public Works Facility	500,000

Source: City of Duluth FY 2004 budget, p. 110 (see capital budget).

ALLOCATION OF MAJOR CITY CAPITAL IMPROVEMENTS TO MAJOR LAND USES

Based on prior allocations of operation expenditures to different types of land uses by major budget category (see Tables 3-6 and 3-7), the costs of major capital facilities

can also be allocated among the major land uses. The capital costs are allocated first to major budget category as shown in Table 4.3.

Table 4.3
City of Duluth Capital Budget Expenditures by Budget Category
(Estimated Allocation of FY 2004 Five-Year Capital Budget Expenditures)

Capital Improvement	Budget Category	% of Total Improvement Cost Allocated to Budget Category	Capital Expense Allocation
New City Hall	General Government	40%	\$2,000,000
New City Hall	Administration	35%	\$1,750,000
New City Hall	Planning & Development	25%	\$1,250,000
Police Headquarters	Public Safety	100%	\$10,100,000
Public Works Facility	Streets	100%	\$500,000
TOTAL			\$15,600,000

Table 4.4
City of Duluth Capital Budget Expenditures by Land Use Category (in \$)
(Estimated Allocation of FY 2004 Five-Year Capital Budget)

Budget Category	Residential Detached Single-Family	Residential Townhouse	Residential Multi-Family	Commercial	Industrial	Other (including non-city)	Capital Expense Total
General Government	\$1,360,000	\$120,000	\$120,000	\$200,000	\$100,000	\$100,000	\$2,000,000
Administration	\$1,190,000	\$105,000	\$105,000	\$175,000	\$87,500	\$87,500	\$1,750,000
Planning & Development	\$500,000	\$250,000	\$125,000	\$275,000	\$62,500	\$37,500	\$1,250,000
Public Safety	\$3,030,000	\$1,515,000	\$2,020,000	\$2,020,000	\$505,000	\$1,010,000	\$10,100,000
Streets	\$200,000	\$50,000	\$0	\$125,000	\$25,000	\$100,000	\$500,000
TOTAL	\$6,280,000	\$2,040,000	\$2,370,000	\$2,795,000	\$780,000	\$1,335,000	\$15,600,000

Source: Expenditures from City of Duluth Budget 2004 (FY 2003 expenditure data). Allocations by Jerry Weitz & Associates, Inc., 2004, with input from City staff. See Appendix A for explanation of assumptions.

Table 4.5
City of Duluth Budget Expenditures by Land Use Category (in %)
(Estimated Allocation of FY 2004 Five-Year Capital Budget)

Budget Category	Residential Detached Single-Family	Residential Townhouse	Residential Multi-Family	Commercial	Industrial	Other (including non-city)	Capital Expense Total
General Government	68%	6%	6%	10%	5%	5%	\$2,000,000
Administration	68%	6%	6%	10%	5%	5%	\$1,750,000
Planning & Development	40%	20%	10%	22%	5%	3%	\$1,250,000
Public Safety	30%	15%	20%	20%	5%	10%	\$10,100,000
Streets	40%	10%	\$0	25%	5%	20%	\$500,000
TOTAL %	40%	13%	15%	18%	5%	9%	\$15,600,000 (100%)

Source: Expenditures from City of Duluth Budget 2004 (FY 2003 expenditure data). Allocations by Jerry Weitz & Associates, Inc., 2004, with input from City staff. See Appendix A for explanation of assumptions.

Based on the prior assumptions about allocating operation expenditures to major budget and land use categories, Table 4.5 indicates that approximately 40% of the major (selected) capital expenditures in Duluth's five-year, capital budget are attributed to detached, single-family land uses. Residential land uses (all three categories combined) are allocated more than two-thirds of the total costs of those selected capital improvements. Commercial, industrial, and other (including non-city users) are allocated the remaining one-third

of the capital expenditures for these major improvements.

The useful life of new facilities (city hall, police headquarters, and the public works facility) is approximately 25 years. Hence, the capital expense can be "annualized" by dividing the total project cost by their useful life. That calculation helps us obtain an annual cost which can then be expressed on a per acre basis, consistent with the operation expenditures. See Table 4.6.

Table 4.6
Annualized Capital Costs Per Acre By Land Use Category
Selected Capital Projects, City of Duluth

Land Use Category	Total Capital Cost (25 Year Life)	Annual Capital Cost (25 Year Life)	Acres of Land Use 2025	Annual Cost Per Acre
Residential Detached Single-Family	\$6,280,000	\$251,200	1,870	\$134.33
Residential Townhouse	\$2,040,000	\$81,600	225	\$362.67
Residential Multi-Family	\$2,370,000	\$94,800	551	\$172.05
Commercial	\$2,795,000	\$111,800	835	\$133.89
Industrial	\$780,000	\$31,200	461	\$67.68
Other (including non-city)	\$1,335,000	\$53,400	--	N/A
TOTAL	\$15,600,000	\$624,000	--	N/A

PARKS AND RECREATION

Although only carryover projects are included in the City's five-year capital budget, it is important to determine the parks and recreation costs of development. As noted previously, residential development is the consumer of parks and recreation facilities, not commercial and industrial development. Therefore, virtually all (98%) (see Appendix B) of the capital costs (unknown unless assumed in this study) for needed parks and recreation

facilities are allocated to the residential developments.

As shown in Appendix B, the City has adopted level of service standards for total park land (6.5 acres per 1,000 population)[§] and certain recreation facility standards.

[§] The City's historic level of park services is below this standard. If the analysis substituted the City's actual service level for its idealized standard, the expenditures would be reduced accordingly.

The revised land use plan projects Duluth's population will grow by approximately 2,500 residents (household population) or 1,000 new housing units (at an average of 2.5 persons per unit) during the next five years. A simple capital improvement program for parks and recreation can be developed to estimate the capital costs of serving the residential population that will be added during the next five years. Of course, the City would not build part of a field or court, but it is important nonetheless to allocate the costs to a per-acre basis.



Church Street Park, Duluth, Georgia

Table 4.7
Parks and Recreation Five-Year Capital Needs
Based on Projected Population Growth

Facility	Standard	Needed to Meet Five Year Increase	Unit Cost	Five-Year Cost	Annual Cost
Acres of park land	6.5 per 1,000 persons	16.25	\$30,000	\$487,500	\$97,500
Baseball field	1 per 5,000	0.5	\$250,000	\$125,000	\$25,000
Basketball court	1 per 5,000	0.5	\$250,000	\$125,000	\$25,000
Softball field	1 per 5,000	0.5	\$250,000	\$125,000	\$25,000
Soccer field	1 per 10,000	0.25	\$250,000	\$62,500	\$12,500
TOTAL				\$925,000	\$185,000



According to data in Table 4.7, which are based on the City's level of service standards for recreation facilities as adopted in its comprehensive plan, the annual cost of providing parks and recreation capital facilities needed to serve five years of population growth is \$185,000.

Now, the costs can be allocated to the three residential land use categories. Chapter 3 revealed that parks and recreation expenses breaks down as

follows: 80% detached single-family, 10% townhomes, 8% multi-family use, and 2% other (including non-city uses).

Using these percentages we allocate the total parks-related capital costs to land use

types in Table 4.8. Then we divide the capital expense by acreage to obtain an annual parks-related capital cost per acre for each residential category.

Table 4.8
Allocation of Parks-Related Capital Cost
by Residential Land Use Category, City of Duluth

Type of Housing Units and Residential Density	% Total Parks & Recreation Capital Costs	Capital Expense Allocation	Acreage Consumed in Next Five Years	Annual Capital Cost for Parks and Recreation Facilities Per Acre
Residential, Detached Single-Family	80%	\$148,000	300	\$493.33
Residential, Townhouse	10%	\$18,500	50	\$370.00
Residential, Multi-family	8%	\$14,800	8.3	\$1,783.13
Other	2%	\$3,700	N/a	N/a
TOTAL	100%	\$185,000	358.3	--

SUMMARY OF ANNUAL CAPITAL COSTS

Combining the foregoing analyses, the annual capital costs for city buildings (new city hall, police headquarters, and public works facility), and parks and recreation land and facilities, are shown in Table 4.9. This does not show other expenditures for services such as fire stations (which are not provided by the City), schools, libraries,

roads, and water and sewer services (the latter two of which are often compensated for through tap on fees and user charges). Those services could be factored in for a more complete estimate of capital costs, but since the City does not provide those facilities they are excluded from this analysis.

Table 4.9
Annual Costs of Selected Capital Facilities
By Land Use Category, City of Duluth

Land Use Category	City Building Capital Projects, Annual Cost Per Acre (\$)	Annual Capital Cost for Parks and Recreation Facilities Per Acre (\$)	Total Annual Capital Costs Per Acre(\$)
Residential Detached Single-Family	\$134.33	\$493.33	\$627.66
Residential Townhouse	\$362.67	\$370.00	\$732.67
Residential Multi-Family	\$172.05	\$1,783.13	\$1955.18
Commercial	\$133.89	\$0	\$133.89
Industrial	\$67.68	\$0	\$67.68
Other (including non-city)	N/A	--	--
TOTAL	N/A	--	--

CHAPTER FIVE: SUMMARY, IMPLICATIONS AND LIMITATIONS

What happens when we combine capital and operating costs? What are the net fiscal impacts for each type of development? This section will explore those results, as well as the limitations to the method. It will also consider implications—what do these findings really mean to the City of Duluth and other local governments?

PUTTING IT ALL TOGETHER: COMBINING CAPITAL AND OPERATING COSTS

Now we combine capital and operating costs. Chapter 4 calculated the capital costs for new city buildings and parks, shown below in Table 5.1. Other capital expenditures were not considered, such as fire stations, libraries, roads, schools, and water and sewer services (the latter two of which are often compensated for through tap on fees and user charges). Those facilities and services could be factored in for a more complete estimate of capital costs, but since the City does not provide those facilities they are excluded from this analysis.

From Chapter 3, Table 3.10, we have the annual net fiscal operational impact per acre by land use. We combine that below with the net fiscal capital impact per acre by land

use to get the overall net fiscal impact per acre by land use (Table 5.1 below).

The results here are similar to those in Chapter 3—in direction, if not in magnitude. Commercial and industrial uses, because they require few City services, still generate a net profit (of +\$63.49 and +\$542.34, respectively). Residential uses are still unprofitable—but more so. Residential detached single-family now generates a net cost of -\$1,538.42 per acre; residential townhomes, -\$1,864.20 per acre, and residential multi-family, -\$2,001.81 per acre. Multi-family uses are most expensive because they support more people per acre, and thus require more capital parks facilities. If new parks were excluded, multi-family uses would be the least expensive of the residential uses.

Table 5.1
Net Fiscal Impact Per Acre By Land Use

Annualized Per Acre Costs	Residential Detached Single-Family	Residential Townhouse	Residential Multi-Family	Commercial	Industrial
Net Operation Cost (-) or Revenue (+) Per Acre	-\$910.76	-\$1,131.53	-\$46.63	+197.38	+610.02
Capital Costs Per Acre: City Hall, Police Station, Public Works Facility	-\$134.33	-\$362.67	-\$172.05	-\$133.89	-\$67.68
Capital Costs Per Acre: Parks and Recreation Facilities	-\$493.33	-\$370.00	-\$1,783.13	\$0	\$0
TOTAL ANNUAL COSTS OR REVENUES PER ACRE	-\$1,538.42	-\$1,864.20	-\$2,001.81	+\$63.49	+\$542.34

CAVEATS AND LIMITATIONS

The results of the fiscal impact analysis must be considered in a broader context. Only impacts to the City of Duluth were considered; impacts to county budget and services were not. Consideration of county services (such as libraries, water, sewer, and schools) may have changed the picture significantly, likely making development more expensive (school costs are discussed in greater detail below).

Another issue involves capital costs. The analysis incorporated the City's 2004 capital costs, including a new city hall and new police station. The method assumes that the 2004 capital costs are a representative snapshot of such costs. However, capital costs may have been particularly high in 2004, shifting the balance towards expenses. An alternate technique might include a historic look at how capital costs have changed, and an attempt to identify an average five-year capital cost.

In addition, a number of revenue sources, including sales tax, franchise fees, and intergovernmental revenues such as grants,

were not included in the analysis. These exclusions may also affect the analysis. For example, grants—excluded because they were too variable from year to year—comprise nearly 38% of the City of Duluth's budget. Including these revenue funds may have lessened the net cost of certain development types.

Another limit to the method is it cannot consider specific "marginal costs"—that is, whether the next large development will trigger the need for new roads, a new sewer plant, a new school, etc. Though the numbers can be used to understand the general impacts of different development types, it cannot be applied to a specific development proposal with adequate certainty.

Despite limitations to the method, the findings echo those from similar studies—residential uses generate a net deficit; commercial and industrial uses generate net revenues. Though specific numbers may change by varying the method, the overall results would likely remain the same.

SCHOOLS AND OTHER EXCLUDED SERVICES

As mentioned above, one important limitation is that services not provided by the City itself—such as schools, fire protection, water and sewer, etc.—were not considered. Inclusion of these costs (as well as taxes paid to the county) would likely change the picture.



Duluth High School, GA

Let us consider schools as a specific example. Although school services are not provided by the City of Duluth, impacts of residential development on the school system are almost always a concern with growing cities and counties. According to the Gwinnett County Board of Education's Budget Office, 2003 expenditures per pupil were \$6,876.00. This is close to the state's expenditure per pupil reported for Gwinnett County during the 2002 Academic Year: \$6484. The Gwinnett County Board of Education's Planning Office does not use a specific formula to determine pupil generation rates by housing units. However, these can be estimated using available data which are summarized below.

Table 5.2
Total School-Age Children Multipliers
by Range of Grade and Type of Housing Unit
Southern Region, United States
(Number of School Age Children Per Unit)

Grade Level of School (student's age range)	Single-Family	Duplex, Triplex, Quadraplex	Townhouse	Garden Apartment
Grades K-6 (age 5 to age 11)	0.3750	0.2412	0.1696	0.1207
Junior High (age 12 to age 14)	0.1352	0.0840	0.0315	0.0599
High (age 15 to age 17)	0.1219	0.0678	0.0369	0.0452
TOTAL, All Schools	0.6321	0.3930	0.2380	0.2258

Source: Burchell, Robert W., David Listokin, and William R. Dolphin, et al. 1994. *Development Impact Assessment Handbook*. Washington, DC: Urban Land Institute.

It is important to note that the pupil generation rates of townhouses and garden apartments are considerably less on a per unit basis. This to some extent should counter the myth that apartment complexes overload the school system. Apartments on a per unit basis generate fewer expenditures per housing unit than detached, single-family residences. The same is true for townhouses, according to data in Table 5.2.

The pupil generation rates per unit (total, all schools) are used to determine how many students will be generated by the new development of 1,000 units. The school costs are allocated to the three types of residential land uses as noted previously. We use 2003 reported costs per pupil of the Gwinnett County Board of Education.

Table 5.3
City of Duluth School Student Projections Next Five Years
By Residential Land Use Category
and Projection of Annual School Expenditure

Residential Land Use Category	Pupil Generation Rate Per Housing Unit	Housing Units Next Five Years	Number of New Students	Annual Cost Per Pupil	Annual School Expenditure	Acres of New Land	Annual School Expenditure Per Acre
Single-Family	0.6321	600	379	\$6,876.00	\$2,606,004	300	\$8,686.68
Townhouse	0.2258	300	68	\$6,876.00	\$467,568	50	\$9,351.36
Apartments	0.2380	100	24	\$6,876.00	\$165,024	8.3	\$19,882.41
TOTAL	---	1,000	471	\$6,876.00	\$3,238,596	358.3	--

According to data in Table 5.3, the residential development expected during the next five years in Duluth will generate 471 additional students (based on pupil generation rates shown in Table 5.2). The bulk of the expense is to low-density residential areas, because more units are anticipated in that category than the others, and because they have higher pupil generation rates. The school system will spend an estimated \$3,238,596 annually for students of the public school system generated by the projected new residential development (1000 units) during the next five years in Duluth.

This analysis considers expenditures—how much these residential units in the City of Duluth cost the Gwinnett County Board of

Education per acre. However, for a fair and balanced portrait of costs and revenues, we would need to consider the income City residents generate for schools. Indeed, each City resident pays taxes to both the City of Duluth and to Gwinnett County, and some of the county taxes feed into a general fund that partially funds school costs. Because the analysis of county taxes would require a more detailed analysis, schools were not factored into either net operational or capital costs.

Schools are only one example of a service not considered. Other services—water and sewer, for example—would likely change the magnitude of the net impact as well, though not its direction.

IMPLICATIONS

The implications of the findings are clear. They suggest that local governments should encourage a balance of land uses—in both their comprehensive plans and their rezoning practices—in order to promote sound fiscal health. Cities and counties clearly need a mix of housing types in order to sustain a vibrant future. Yet local governments that allow excess residential development in areas planned for commercial and industrial uses may be headed towards fiscal problems in the future, since residential uses appear to generate a net cost to the local government rather than a net revenue.

However, the ability of a local government to encourage balanced land use depends on several factors—market demands, state legal frameworks that shape rezoning decisions, etc. The desire to achieve fiscal health must be balanced with other considerations. In some cases, local governments may wish to use tax, infrastructure, or other proactive incentives to encourage commercial and industrial growth in certain areas, rather than relying

exclusively on future land use maps and zoning to guide development in the community.

What do the findings say about quality growth? The analysis did consider density to a limited degree, comparing single-family detached homes with townhomes and multi-family residences. The study found that multi-family units generated far more annual operations revenue per acre than single-family uses or townhomes, and less net debt than the other uses (-\$46.63 compared to -\$910.76 and -\$1,131.53). Yet when capital costs are considered—particularly the capital cost of parks facilities—multi-family and townhouses are slightly more expensive than single-family detached residential uses on a per acre basis, since these two types of residential uses have more units and more people per acre, thus on occasion requiring more parks.

Other implications for quality growth are limited. To keep it simple, the tool was not designed to consider factors such as closeness to infrastructure, or the

differences between compact development and sprawl. Moreover, the types of services that would typically make townhomes and multi-family units less expensive to serve, such as roads, sewer, and water, were not considered in the analysis because they are

provided by another jurisdiction (Gwinnett County). Nonetheless, the literature review discussed in Chapter 2 strongly suggests that more compact, higher density development tends to be less costly to serve with infrastructure.

APPENDIX A: METHOD USED IN DULUTH CASE STUDY

STEP 1: Identify Development Prototypes (Major Land Uses).

This step consisted of identifying development prototypes with help of City staff, including commercial, industrial, office, single-family residential, townhouses, and apartments. The development prototypes were distinct from the zoning categories, though there were some similarities. For example, while the City was interested in the fiscal impact of townhouses, there was no zoning category specifically for townhouses. Townhouses have been developed primarily under the City's Residential Planned Unit Development zoning district. The development prototypes included the three categories of residential development based primarily on density.** Note that the residential categories are a compromised "blend" of density and housing type. That is, we needed to be consistent with residential categories established in the land use element, which are based on density ranges as incorporated into the list below. However, we also wanted to learn about the fiscal impacts of different housing types. Development prototypes selected were as follows:

- Detached, single-family residential (an average of two units per acre)
- Townhouses (an average of six units per acre)
- Apartments (an average of 12 units per acre)
- Commercial
- Industrial

STEP 2: Collect Property Tax Data Paid by Different Land Use Types Based on a Sample of Properties. Convert the Data to "Per Acre" Figures for Each Major Land Use Type.

In the land use planning process, the unit of analysis is acres of land. For the data to be meaningful in the context of land use planning, it was determined that property tax data (revenues by land use) needed to be expressed in terms of property taxes paid per acre. This differs from impact fee methods and other studies that seek to determine costs and credits on a per unit, per capita, or per square foot basis.

We initially considered getting a full and accurate picture by using the entire tax digest of the City. That is, it would be possible to divide the City's property tax digest into major land use types and include all properties in the City in the analysis. However, this would have required literally thousands of calculations and the City's tax digest was not in a form that could be manipulated easily enough to derive citywide property tax data by major land use type. For this reason, we resorted to sampling methods.

Consultants informed the City that thirty (30) observations are normally considered acceptable in terms of statistical reliability. Hence, we sought a sample size of thirty observations for each major land use type. To ensure against selection bias, we would like to have randomly selected each observation from a universe of all properties of that major land use type. We were unable

** The method initially included an office-professional category. However, that category was discontinued primarily because the office developments in Duluth are primarily office "condominiums" and the data did not lend themselves to the method used here which converts property tax data to a "per acre" unit of analysis.

to accomplish that ideal, however. Instead, we sought to gain a representative sample of properties by dividing the City into four quadrants.

One key drawback to this method is that not all development is created equally—how do you compare small, pre-1950s homes to the much newer and larger homes created in the 1990s? Would a million dollar home skew the average excessively, making the results misleading? The averaging method admittedly does not capture these important considerations such as the size and value of development. By dividing the City geographically and providing observations in different parts of the City, however, we sought to reassure ourselves that the data would not favor (or be skewed by) particular areas that are substantially above or below a citywide average. Drawing data from the four sections of the City provides a good sample from (in the case of detached, single-family residences) old, pre-World War II homes to brand new homes.

For each of the major land uses, City staff prepared excel spreadsheets (office-professional was excluded since most are under condominium ownership which did not match the study methods which use acreage data). Each property is listed and property taxes per acre for the City of Duluth and Gwinnett County were calculated. For each major land use type, the observations were then summed to obtain an average property tax paid per acre.

However, the researchers had to make adjustments to the data for townhouses (see note in Appendix B under data provided for townhouses). Generally, the townhouse data are “net densities” (i.e. lots of 0.6 acre), whereas the overall density of most townhouse units is capped by zoning at 6 units per acre. Therefore, the average property taxes paid per acre by townhouses were adjusted to 6 units per acre.

STEP 3: Collect operational revenue and expenditure data by major service categories. Exclude intergovernmental revenues and capital expenditures. Allocate operation expenditures and non-tax, non-intergovernmental revenues by major land use types selected.

This step involved discussions with department heads, using their expertise to allocate expenditures of the annual operating budget to the major land use categories. In some cases, the department head was unable to attribute certain expenditures to specific land uses. In others, the consultant employed judgments which modified staff estimates. For example, it was difficult to determine whether general administrative costs or certain staff costs were associated with a specific type of development. In those cases, we used simplifying assumptions. The proportion of land uses (acres) in the City was considered an important variable in allocating revenues and expenditures to major land uses. For examples of department-specific allocations for the City of Duluth, refer to Appendix B.

STEP 4: Compare Expenditures and Revenues to get Net Fiscal Impact (Operations)—Before Taxes.

This step involved subtracting net expenditures from net revenues (or where revenues were greater, subtracting revenues from expenditures) for each type of development, leaving us with a net fiscal impact per acre before taxes.

Each land use type's revenues and expenditures were then divided by total acreage of that land use type, to yield a net operation cost or revenue per acre of land. Note that taxes are considered in the following step.

STEP 5: Combine Pre-Tax Net Fiscal Impact (Operations) and Property Taxes to Get Net Fiscal Impact (Operations).

This step combines data from Step 4, and property taxes per acre, to get a net operational cost per acre. For the residential land uses, property taxes per acre were less than the pre-tax net operation cost per acre, so property taxes were subtracted out, leaving a net operational cost. For commercial and industrial uses, property taxes per acre were greater than the pre-tax net operation costs, so in those cases, the net operation costs were subtracted from the property taxes, leaving a net revenue. Keep in mind that this step only provides the net fiscal impact on the operations budget; capital costs are considered in subsequent steps.

STEP 6: Apply to Desired Scenarios.

In this step, the net fiscal impact per acre was multiplied by the number of acres gained by each development type from 2000 – 2003. This allowed the City to see the net impact over the past three years of development. The City also wished to understand the net impact of future development. Thus, projected acreages from the future land use plan were multiplied by the net fiscal impact figures, thus giving the City a sense of the overall net operational fiscal impact of development as set forth by the plan.

STEP 7: Allocate Major Budgeted Capital Improvements to Budget Categories.

Based on prior allocations in Step 3, each major capital improvement in the fiscal year 2004 five-year capital budget was divided into budget categories. For example, the new city hall cost \$5,000,000. In the case of the new city hall, 40% of the cost was placed in the general government category, 35% in administration, and 25% in planning and development. This allowed us to calculate an expense for each major budget category—for example, \$2,000,000 of the city hall expenses were allocated to the general government budget category ($\$5,000,000 \times .40$).

STEP 8: Allocate Major Budgeted Capital Improvements to Land Use Types. Annualize the Budgeted Capital Costs.

Capital facilities can sometimes be allocated through reasoning or through discussions with local staff (e.g., a large park will be allocated to residential land uses). However, the facilities Duluth needed—a new city hall, police headquarters, and a public works facility—were not land-use specific.

Thus, we used the percentage breakdowns specified in Step 3 to allocate these budgeted capital costs to land use types. For example, in Step 3, 68% of the overall costs incurred in the general government category were attributed to residential detached single-family uses, 6% to residential townhouses, 10% to commercial, etc. These percentages were then used to break

the \$2,000,000 into land use types—resulting in \$1,360,000 of the costs for residential detached single-family (i.e., $2,000,000 \times .68$), for example.

This step gives us the capital costs per acre for each type of land use. Yet capital facilities have different economic lifespans, and the cost must be annualized, distributed over the useful lifespan of the project. The City of Duluth capital projects were estimated to have a 25 year lifespan, thus the total costs by land use were divided by 25, and then divided again by the total acres of land use to get an annual cost per acre. For example, the total capital cost allocated to residential single-family uses was \$6,280,000. The annual capital cost, over 25 years, was \$251,200 ($\$6,280,000 / 25 = \$251,200$). There were projected to be 1,870 acres of single-family residential by 2025, leading to a net capital cost of \$134.33 per acre of single-family residential ($\$251,200 / 1,870$).

STEP 9: Estimate Non-Budgeted Capital Costs Using Service Standards

Not all of the community's capital costs may appear in its capital budget. Nevertheless, in some cases it is possible to estimate some of those future costs by using service standards. For example, in the City of Duluth, we used service standards to estimate capital costs for parks, which were not included in the current capital budget. The City had a service standard of 6.5 acres of park per 1,000 persons. Because the City projected adding 1,000 housing units in the next five years (with 2,500 people), this meant an addition of 16.25 acres of parks, at a unit cost of \$30,000, a five-year cost of \$487,500 ($16.25 \times \$30,000$), and an annual cost of \$97,500 ($\$487,500 / 5$). The percentage breakdowns for parks and recreation services in Chapter 3 (80% single-family, 10% townhouses, 8% multi-family, and 2% other) were applied to the annual cost. These calculations were conducted for other park facilities such as baseball fields and basketball courts, resulting in a total annual capital expense of \$185,000 for parks facilities.

STEP 10: Allocate the Non-Budgeted Capital Costs to Land Use Types

Step 9 gave us estimated capital costs for items not in the capital budget, using service standards to make projections. Step 10 allows us to allocate those non-budgeted capital costs to land uses (note that budgeted capital costs had already been allocated to land uses in Step 8). In the case of the City of Duluth, the non-budgeted capital costs involved parks and recreation facilities. To split the non-budgeted capital costs between uses, we used the % breakdowns for the parks and recreation services from Chapter 3 (80% single-family residential, 10% townhouses, 8% multi-family, and 2% other).

These percentages were used to allocate the total non-budgeted capital cost (e.g., residential detached single-family accounted for \$148,000 (or 80% of the total \$185,000 annual parks capital cost). The total cost per land use was then divided by the projected acreage to get an annual parks and recreation capital cost per acre. For example, residential uses were projected to grow by 300 acres in the next five years, resulting in an annual cost of \$493.33 per acre ($\$148,000 / 300$). These calculations were then conducted for the other two types of residential uses.

STEP 11: Add Budgeted Capital Costs and Non-Budgeted Capital Costs To Get Total Annual Capital Costs Per Acre

This step adds the budgeted capital costs (such as the new city hall) and the non-budgeted capital costs (park facilities) for a total annual capital cost per acre. For example, residential detached single-family had a total annual capital cost of \$627.66 per acre (\$134.33 of budgeted capital costs plus \$493.33 of estimated capital costs).

STEP 12: Combine Annual Capital Costs Per Acre and Net Fiscal Operations Impact Per Acre for Net Fiscal Impact Per Acre.

Step 11 gives us annual capital costs per acre. Step 5 gave us the net fiscal impact per acre for government operations (typically a cost). Now we combine those data to get the net fiscal impact per acre by land use. Consider residential detached single-family uses. Step 5 showed us that the annual net fiscal impact on the operations budget was a loss of \$910.76 per acre for this type of use. Step 11 showed us that the annual capital costs per acre were \$627.66 per acre for detached single-family uses. Adding these costs together, we get a total net fiscal cost of \$1,538.42 per acre of single-family residential use ($\$910.76 + \627.66). These calculations are then conducted for the other development types such as residential multi-family and industrial.

Where net fiscal impacts from the operation budget were positive (as in the case of industrial land), the annual capital costs per acre were simply subtracted from the net fiscal impact of the operational costs. For example, industrial land generated a net operational revenue of \$610.02 per acre. The total industrial capital costs per acre were estimated at \$67.68. Subtracting \$67.68 from \$610.02, this results in a net revenue of \$542.34 per acre of industrial land.

APPENDIX B: CITY OF DULUTH DATA

City of Duluth Tax Evaluation			2003 Data			
Single-Family Detached			4/9/2004			
Area	Map Reference	Acreage	\$ County Taxes	County Taxes (\$) Per Acre	City Taxes (\$) Per Acre	City Taxes (\$) Per Acre
1	6-321-004	1.64	6,092.82	3,715.13	998.23	608.68
1	6-323-010	0.57	1,615.41	2,834.05	273.04	479.02
1	6-322-276	0.24	1,700.68	7,086.17	314.57	1,310.71
1	6-294-481	0.13	1,591.05	12,238.85	269.1	2,070.00
2	6-324-032	0.56	926.6	1,654.64	175.04	312.57
2	6-324-041	0.41	1,576.97	3,846.27	266.82	650.78
2	6-324-097	0.17	1,678.4	9,872.94	300.45	1,767.35
2	7-243-400	0.13	1,059.62	8,150.92	354.65	2,728.08
2	7-243-432	0.15	2,298.78	15,325.20	383.72	2,558.13
2	7-244-054	0.28	1,975.75	7,056.25	356.52	1,273.29
2	7-244-299	0.4	3,416.85	8,542.13	613.99	1,534.98
2	7-243-011	0.42	4,046.09	9,633.55	666.73	1,587.45
2	7-242-072	0.33	1,816.65	5,505.00	324.12	982.18
3	6-295A-004	2.52	1,874.32	743.78	346.34	137.44
3	6-293-002	0.81	309.74	382.40	185.01	228.41
3	6-292-543	0.35	1,639.77	4,685.06	276.99	791.40
3	6-294-059	1.07	1,728.99	1,615.88	325.79	304.48
3	6-294-259	0.12	1,541.61	12,846.75	286.13	2,384.42
3	6-293-086	0.5	1,046.94	2,093.88	209.51	419.02
3	6-294-362	0.18	1,530.73	8,504.06	283.84	1,576.89
4	7-204-321	0.28	2,285.43	8,162.25	404.07	1,443.11
4	7-204-521	0.15	1,488.61	9,924.07	280.52	1,870.13
4	7-202-244	0.83	1,648.84	1,986.55	307.51	370.49
4	7-161-296	0.28	2,456.32	8,772.57	397.84	1,420.86
4	7-161-284	0.29	1,679.51	5,791.41	283.43	977.34
4	7-161-236	0.45	1,826.95	4,059.89	305.44	678.76
4	7-162-213	0.3	3,335.39	11,117.97	580.97	1,936.57
4	7-162-178	0.27	3,444.67	12,758.04	602.78	2,232.52
4	7-161-186	0.48	1,855.26	3,865.13	332.22	692.13
4	7-161-148	0.51	1951.3	3,826.08	113.16	221.88
Total		14.82	61,440.05	4,145.75	10,818.53	730.00

Note: Taxes include exemptions for homestead, state credit and value added exemption.

**City of Duluth Tax Evaluation
Townhouses**

2003 Data

4/9/2004

Area	Map Reference	Acreage	\$ County Taxes	County Taxes (\$) Per Acre	\$ City Taxes	City Taxes(\$) Per Acre
1	6-322A-025	0.05	792.42	15,848.40	160.09	3,201.80
2	7-243-082	0.09	1,093.47	12,149.67	207.43	2,304.78
2	7-243-089	0.08	966.85	12,085.63	189.16	2,364.50
2	7-243-097	0.05	1,021.77	20,435.40	196.65	3,933.00
2	7-243-102	0.14	1,015.98	7,257.00	195.18	1,394.14
2	7-243-115	0.10	1,040.71	10,407.10	199.33	1,993.30
2	7-243-119	0.09	1,246.20	13,846.67	213.24	2,369.33
2	7-243-110	0.08	1,005.86	12,573.25	185.84	2,323.00
2	7-243-100	0.06	1,143.66	19,061.00	196.63	3,277.17
3	6-296A-008	0.06	977.05	16,284.17	186.04	3,100.67
3	6-296C-043	0.22	1,266.23	5,755.59	233.18	1,059.91
3	6-296B-001	0.07	1,860.17	26,573.86	259.76	3,710.86
Total		1.09	13,430.37	12,321.44	2,422.53	2,222.50
(adjusted to 6 units per acre)		2.0	13,430.37	6,715.19	2,422.53	1,211.27

Note: Taxes include exemptions for homestead, state credit and value added exemption

Note: Many townhouses are located within the Planned Residential Development (PRD) District, which allows townhouses to be located on lots of 2,900 square feet (0.06) per acre, but the maximum density of the PRD district is (six) 6 units per gross acre. (Section 1407 of the Duluth Zoning Ordinance). For this reason, observations that were less than 0.06 acre were excluded from the analysis. The resulting calculation of taxes paid per acre would be deceiving if the actual (not lot) acreage was used, since that would be a higher density than permitted by the zoning ordinance. Townhouse developments also include public streets and some open spaces. Hence, an adjustment was made to the acreage calculation so that the observations would equal the gross density of six units per acre (i.e., the observations in the table above equal 12 units on 2 acres).

City of Duluth Tax Evaluation
Multi-Family

2003 Data

4/9/2004						
Area	Map Reference	Acreage	\$	County Taxes (\$)	\$	City Taxes (\$)
			County Taxes	Per Acre	City Taxes	Per Acre
1	6-321-149	16.21	144,866.00	8,936.83	21,386.92	1,319.37
1	6-321-147	31.59	173,716.14	5,499.09	28,136.05	890.66
1	6-290-052	22.03	160,698.70	7,294.54	26,027.67	1,181.46
1	6-321-203	10.84	71,866.36	6,629.74	10,991.68	1,013.99
1	6-322-133	32.00	153,840.00	4,807.50	21,885.26	683.91
1	6-296-025	28.59	139,791.84	4,889.54	22,641.48	791.94
1	6-296-029	47.93	275,630.00	5,750.68	44,642.60	931.41
1	6-291-019	16.93	134,668.96	7,954.46	18,540.02	1,095.10
2	6-236-245	24.89	252,410.04	10,141.02	40,881.82	1,642.50
2	6-260-406	21.95	304,695.52	13,881.34	41,947.69	1,911.06
2	6-291-011	78.64	474,340.00	6,031.79	66,538.24	846.11
2	6-293-184	4.09	28,588.60	6,989.88	4,630.37	1,132.12
2	6-296-002	22.50	152,558.00	6,780.36	24,709.16	1,098.18
2	6-291-005	40.47	269,220.00	6,652.34	43,604.40	1,077.45
Total		398.66	2,736,890.16	6,865.22	416,563.36	1,044.91

*Data taken from Duluth/Gwinnett County 2003 tax digests

**City of Duluth Tax Evaluation
Commercial**

2003 Data

4/9/2004

Area	Map Reference	Acreage	\$ County Taxes	County Taxes (\$) Per Acre	\$ City Taxes	City Taxes (\$) Per Acre
1	6-296-087	8.20	53,556.82	6,531.32	7,373.19	899.17
1	6-322-145	10.07	66,471.70	6,600.96	10,766.13	1,069.13
1	6-322-137	5.61	32,247.44	5,748.21	5,222.98	931.01
1	6-322-139	2.19	19,072.31	8,708.82	3,089.06	1,410.53
1	6-296-116	1.83	12,164.00	6,646.99	1,970.30	1,076.67
1	6-321-209	0.43	7,053.56	16,403.63	1,142.44	2,656.84
1	6-321-119	0.72	17,886.52	24,842.39	2,861.69	3,974.57
1	6-296-048	1.74	14,212.22	8,167.94	2,287.15	1,314.45
2	6-324-002B	2.42	13,028.95	5,383.86	2,110.25	872.00
2	7-244-420	1.36	16,130.12	11,860.38	2,612.53	1,920.98
2	6-324-087	0.91	6,471.54	7,111.58	1,048.17	1,151.84
2	7-243-318	2.94	31,666.67	10,770.98	5,128.92	1,744.53
2	7-244-394	1.29	7,153.56	5,545.40	1,158.63	898.16
3	6-293-123	5.87	16,260.22	2,770.05	5,267.20	897.31
3	6-291-078	1.36	13,299.48	9,779.03	2,154.06	1,583.87
3	6-292-005	1.42	3,299.88	2,323.86	534.47	376.39
3	6-291-080	0.77	6,756.14	8,774.21	1,094.26	1,421.12
3	6-293-155	1.82	10,045.75	5,519.64	1,627.07	893.99
3	6-293-003	1.61	2,892.19	1,796.39	468.44	290.96
3	6-295-025	6.58	44,582.82	6,775.50	7,220.89	1,097.40
3	6-295-066	3.76	47,459.02	12,622.08	7,686.73	2,044.34
3	6-295-067	1.10	7,685.59	6,986.90	1,244.80	1,131.64
4	6-293-129	1.35	9,620.14	7,126.03	1,558.13	1,154.17
4	6-293-260	0.84	2,752.41	3,276.68	445.80	530.71
4	7-201-262	1.06	15,390.41	14,519.25	2,492.72	2,351.62
4	7-202-282	0.98	11,031.61	11,256.74	1,786.74	1,823.20
4	7-202-059	2.31	28,493.72	12,334.94	4,615.01	1,997.84
4	7-202-058	1.85	8,959.90	4,843.19	1,451.2	784.43
4	7-202-286	0.86	10,256.00	11,925.58	1,411.95	1,641.80
4	7-202-294	4.16	58,407.93	14,040.37	9,460.08	2,274.06
Total		77.41	594,308.62	7,677.41	97,290.99	1,256.83

**City of Duluth Tax Evaluation
Industrial**

2003 Data

4/9/2004

Area	Map Reference	Acreage	\$ County Taxes	County Taxes (\$) Per Acre	\$ City Taxes	City Taxes (\$) Per Acre
1	6-325-054	4.84	43,048.29	8,894.27	6,972.34	1,440.57
1	6-325-022	3.72	20,873.52	5,611.16	3,380.79	908.81
1	6-323-172	2.82	11,831.59	4,195.60	1,916.31	679.54
1	6-325-038	8.30	45,417.41	5,471.98	17,705.00	2,133.13
1	6-325-014	3.36	22,352.95	6,652.66	3,620.41	1,077.50
1	6-325-013	3.36	34,474.27	10,260.20	5,583.65	1,661.80
1	6-322-138	2.33	20,186.36	8,663.67	2,198.96	943.76
1	6-322-142	2.81	22,777.29	8,105.80	3,689.14	1,312.86
1	6-325-042	2.86	28,811.68	10,074.01	5,157.15	1,803.20
1	6-324-211	0.94	4,748.54	5,051.64	769.10	818.19
1	6-328-002	4.12	2,080.69	505.02	337.00	81.80
1	6-324-017	5.00	4,203.77	840.75	692.27	138.45
1	6-325-031	2.40	25,311.81	10,546.59	4,099.64	1,708.18
1	6-325-035	2.77	29,584.71	10,680.40	4,791.71	1,729.86
1	6-325-028	3.08	26,922.00	8,740.91	4,360.44	1,415.73
1	6-328-007	2.00	6,325.38	3,162.69	1,024.50	512.25
1	6-324-018	0.35	1,581.98	4,519.94	256.23	732.09
1	6-325-067	10.26	119,220.86	11,619.97	19,309.69	1,882.04
2	6-324-002A	1.20	3,357.56	2,797.97	543.61	453.01
3	6-261-010	8.31	30,228.29	3,637.58	4,895.94	589.16
3	6-261-009	10.00	16,613.43	1,661.34	2,690.81	269.08
3	6-267-031	10.33	44,812.31	4,338.07	7,258.06	702.62
3	6-267-025	11.63	39,806.10	3,422.71	6,447.22	554.36
3	6-293-237	7.55	24,206.72	3,206.19	3,920.66	519.29
3	6-296-095	1.49	14,732.74	9,887.74	2,386.20	1,601.48
4	7-204-004	1.25	6,752.29	5,401.83	1,093.64	874.91
4	7-204-625	2.00	6,793.33	3,396.67	1,100.28	550.14
4	7-203-356	1.09	4,556.24	4,180.04	737.95	677.02
4	7-203-050	1.20	3,116.54	2,597.12	504.77	420.64
4	7-201-220	1.30	1,161.49	893.45	188.12	144.71
Total		122.67	665,890.14	5,428.30	117,631.59	958.93

NOTES ON CITY OF DULUTH SERVICES

Roads and Public Works

The City of Duluth's Public Works Department completes minor road and sidewalk repairs, maintains road rights-of-ways including street signs, performs storm drainage maintenance functions, mows medians and shoulders, and collects trash in rights-of-ways. The comprehensive plan notes that the City's development regulations require that new roads dedicated to the City shall be appropriately maintained by the developer until the subdivision is mostly complete; therefore, maintenance requirements should not be substantial. Nonetheless, residential subdivisions with public streets dedicated to the City will eventually require resurfacing or repair, at cost to the City since it is assuming maintenance responsibilities. Traffic signals are operated mostly by Gwinnett County. Signals require maintenance and sometimes upgrading. Signal management is a potential cost to the City.

The City has expenditures in its public works functions for special events which serve not only City residents but others who are not residents. Maintenance of buildings and grounds (City-owned properties) is also included in this category.

Public Works Expenditures Allocated to Major Land Uses (%)

Expenditure Category	Residential 1-3 units/acre	Residential 3-6 units/acre	Residential 6 units or more	Office/ Professional	General Commercial	Industrial	Public/ Institutional	Total
Public Works	50%		0%		30%		20%	100%

Source: City of Duluth, April 2004.

Police

The City of Duluth Police Department provides law enforcement services to its citizens, including the routine patrol of all areas within the corporate limits. All criminal investigations are handled in-house. In 1994, the City had a level of service of 2.5 sworn officers per 1,000 residents. The City has planned a new police headquarters building to meet its longer term needs.

Revenues are generated by this service in the form of police fines. According to City estimates, approximately 60 percent of fines are generated from residential development (of 1-3 units per acre) and 40 percent of fines are generated from residential development of 6 units or more per acre). Expenditure allocations have been estimated by the Duluth Police Chief and are provided below.

Police Expenditure Allocated to Major Land Uses (%)

Expenditure Category	Residential 1-3 units/acre	Residential 3-6 units/acre	Residential 6 units or more	Office/ Professional	General Commercial	Industrial	Public/ Institutional	Total
Police Administration	40%		50%	10%				100%
Police Criminal Investigation	36%	8%	15%	15%	15%	6%	5%	100%
Police Records/Court Services	60%		40%					100%
Police Uniform Division	30%	15%	20%	12%	13%	5%	5%	100%
Police (COPS)	10%			5%	5%		80%	100%

Source: City of Duluth, April 2004.

General Government

The City Administrator, City Clerk, Planning and Development Department, and other administrative functions are provided by the City out of its existing city hall on West Lawrenceville Street.

General Government Expenditures Allocated to Major Land Uses (%)

Expenditure Category	Residential 1-3 units/acre	Residential 3-6 units/acre	Residential 6 units or more	Office/ Professional	General Commercial	Industrial	Public/ Institutional	Total
City Clerk	10%	40%	15%	10%	20%	4%	1%	100%
Planning - Administration	20%	40%	10%	10%	12%	5%	3%	100%
Planning – Street/Storm	10%	25%	5%	15%	25%	10%	10%	100%

Source: City of Duluth, April 2004.

Parks and Recreation

The City operates a parks and recreation department. As of 1994, the City had one community park consisting of 17 acres and no already-developed neighborhood parks. The comprehensive plan notes, however, that there is much potential for expanding the park system on City-owned vacant properties.

The comprehensive plan cites a standard of 6.5 acres per 1,000 residents as the desired level of service for community park land and 1.5 acres per 1,000 residents for neighborhood park land. It also notes that several subdivisions and most of the apartment complexes provide swimming pools and tennis courts for use by residents. The comprehensive plan also cites facility standards which include the following: 1 baseball field per 5,000 residents, 1 basketball court per 5,000 residents, 1 softball field per 5,000 residents, 1 soccer field per 10,000 residents, and 1 tennis court per 2,000 residents.

The City parks and recreation director notes that the department's programs serve non-city residents as well. However, for purposes of this study, all costs are allocated to the major land uses in the City, as shown in the table below.

Parks and Recreation Expenditure Allocated to Major Land Uses (%)

Expenditure Category	Residential 1-3 units/acre	Residential 3-6 units/acre	Residential 6 units or more	Office/ Professional	General Commercial	Industrial	Public/ Institutional	Total
Parks and Recreation (all)	80%	10%	8%	0%	0%	0%	2%	100%

Source: City of Duluth, April 2004.

Revenues for City recreational programs are obtained from recreation program fees, seasonal (summer) camps, and special events.

Schools

Public education is provided by the Gwinnett County Board of Education. Because the City does not provide this service, it is excluded from further consideration, except that some cost information is presented in Chapter Five on the impacts of residential development on the Gwinnett County school system.

Public Water

Duluth operated a water distribution and treatment system until 1991, but at that time it was purchased by Gwinnett County. Because the City does not provide this service, it is excluded from further consideration in the Duluth case study.

Sanitary Sewer

Gwinnett County is the service provider for residents and businesses in Duluth. Because the City does not provide this service, it is excluded from further consideration in the Duluth case study.

Solid Waste Management

Garbage is collected by a private firm hired by the City. The City sells garbage bags to residential users and does not make a profit on their sale. The City also operates a curbside recycling program which cost \$1.58 per household in 1993. Because the City does not provide this service, it is excluded from further consideration even though there is some municipal subsidy of solid waste collection services.

Libraries

The Gwinnett County Public Library System operates the Duluth Public Library, which consists of 10,000 square feet and 50,000 volumes. The plan predicted the library would be at maximum capacity within ten years (2004), although it also states the local library should be adequate through the year 2015. Libraries are excluded from analysis.

Fire Protection and Emergency Medical Services (EMS)

Fire protection services are provided by the Gwinnett County Bureau of Fire Services. There are two fire stations in the City. Emergency Medical Services (EMS) are provided from Duluth's Station #19. The level of service standard set in the comprehensive plan is 1 ambulance per 35,000 residents. Because the City does not provide fire and EMS services, they are excluded from further consideration.

ENDNOTES

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